

ISSN: 3049-2521 (O)

Volume 2 Issue II

2022

LEX AD COELUM



A Flagship Journal of
CENTRE FOR AVIATION AND SPACE LAWS



THE WEST BENGAL NATIONAL UNIVERSITY OF JURIDICAL
SCIENCES, KOLKATA

Patron

Prof. (Dr.) Nirmal Kanti Chakrabarti

Vice-Chancellor, The West Bengal National University of Juridical Sciences, Kolkata

Editor-in-Chief

Prof. (Dr.) Sandeepa Bhat B.

Professor of Law, The West Bengal National University of Juridical Sciences, Kolkata

Editorial Board

Prof. (Dr.) Pablo Mendes de Leon

Professor Emeritus, Air and Space Law, Leiden University, Netherlands

Prof. (Dr.) Steven Truxal

Professor, Air and Space Law, Leiden University, Netherlands

Prof. (Dr.) Christopher Newman

Professor of Law, Northumbria University, England

Prof. (Dr.) Wian Erlank

Professor of Law, North-West University, South Africa

Prof. (Dr.) Fabio Tronchetti

Associate Professor of Law, Northumbria University, England

Prof. (Dr.) V. Balakista Reddy

Chairman, Telangana Council of Higher Education;

Former Professor & Dean Mahindra University; Former Registrar, NALSAR

Editorial Assistant

Nirbindu Banerjee

LEX AD COELUM

TABLE OF CONTENTS

VOLUME 2 ISSUE II (JULY – DECEMBER 2022)

	P. No.
1. Recent Efforts on Developing New Norms for Space Security: A Brief Overview.....	36-39
<i>Kiran Mohan Vazhapully</i>	
2. Outer Space Treaty and India's Space Policy: Forging a Path.....	40-44
<i>Aaditya Vikram Sharma</i>	
3. Liberalisation of the Indian Space Sector: Private Participation and Legal Challenges.....	45-49
<i>Rongeeet Poddar</i>	
4. Drone Laws in India: Reaching its Potential or a Long Way to go?.....	50-54
<i>Kanchan Yadav</i>	
5. Is the Outer Space an Outlet for Tax Evasion?.....	55-58
<i>Twesha Karnani</i>	
6. Private Space Companies and Insolvency: Unravelling the Legal Quagmire.....	59-63
<i>Ishita Das</i>	

RECENT EFFORTS ON DEVELOPING NEW NORMS FOR SPACE SECURITY: A BRIEF OVERVIEW

*Kiran Mohan Vazhapully**

Keywords: Conference on Disarmament – EU CoC – PPWT – Space security – Space weapons

On 13 May 2022, the first formal meeting of the [Open-ended Working Group on reducing space threats](#) (OEWG), established by the [UN General Assembly](#) (UNGA) based on a [proposal by the United Kingdom](#), concluded in Geneva. The Working Group *inter alia* aims “to make recommendations on possible norms, rules and principles of responsible behaviours relating to threats by States to space systems, including, as appropriate, how they would contribute to the negotiation of legally binding instruments, including on the prevention of an arms race in outer space”. Importantly, this meeting opened the issue to most States that have not been active in previous space disarmament deliberations.

[Reportedly](#), the meeting was collegial despite the long-held differences among major space-faring nations on the form and content of the future norms. This is a welcome departure from the past negotiations at the Conference on Disarmament (CD) in this regard— marred by stark differences of opinions and inflexible positions. When viewed alongside the United States’ recent, [self-imposed ban on anti-satellite \(ASAT\) missile tests](#) and Canada [matching this pledge](#), this constructive development augurs well for space security and sustainability and has the potential to fill in the gaps in existing international law. Significantly, Article IV of the 1967 Outer Space Treaty, by prohibiting the placement of nuclear weapons and other weapons of mass destruction, provides only for partial demilitarisation of outer space. This provision does not cover ASAT weapons and dual-use, co-orbital technologies— both weapons of choice in space for a few nations in the 21st century.

Differences Persist

However, as is clear from their [submissions](#) to the OEWG, China and Russia continue to promote their idea of a legally binding treaty in intergovernmental fora.

In 2008, they jointly submitted to the CD the Draft Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force against Outer Space Objects ([PPWT/Draft Treaty](#)) aimed at preventing an arms race in space. The signatories to the treaty would commit “not to place any weapons in outer space.” The PPWT also stipulates that the parties may not “resort to the threat or use of force against outer space objects” or engage in activities “inconsistent” with the purpose of the Treaty.

Noticeably, the Draft Treaty omitted ground-based ASAT weapons from its purview, which the United States vehemently [criticised](#). The Draft Treaty was also opposed for its absence of a verification mechanism to ensure compliance. Further, the PPWT also does not ban the development, testing, or stockpiling of weapons on the ground that could be promptly placed on orbit. Instead, it calls for “transparency and confidence-building measures” implemented on a “voluntary basis.” An [updated version](#) of the Draft Treaty was submitted in 2014, but these [issues stayed on](#). Consequently, the proposal could not receive sufficient support in the CD.

European Efforts

Contrastingly, western nations advocate for “soft law”, initially in the form of [Transparency and confidence-building measures](#) (TCBMs) for arms control in outer space. Officially released in 2008, the European Union Draft Code of Conduct for Outer Space Activities (CoC) was envisioned as TCBMs that would strengthen existing regulations. This initiative did not favour the developing States, notably BRICS, as they were excluded from the process. It was perceived as an exclusive EU project.

The sponsors of CoC tried to address this concern in 2014 through a more inclusive approach—by engaging in a broader [consultation process](#) and renaming the amended draft “[International Code of Conduct for Outer Space Activities](#)”. Even after [three rounds of consultations](#), disagreements on the form and content of the new norms persisted. China and Russia wanted a binding agreement and had already proposed PPWT. Further, there were differences of opinion on the choice of forum for negotiation and process among EU member states and others. The EU member states advocated for an *ad hoc* process to ensure broader participation, while a few

other States argued for an UN-based approach. These differences, along with confusion about the methodology and the way forward, ultimately led to the failure of this initiative.

Space Security at the UN

Aside from these State-led initiatives, the UNGA took the lead in establishing a Group of Governmental Experts (UNGGE) on Transparency and Confidence-building Measures (TCBMs) in Outer Space Activities in 2011. As the discussions at the CD had been in limbo for several years, many States saw the UNGGE as a way forward on space security matters. The UNGGE convened in 2012 and 2013 and submitted its [final report](#) in 2013. The report outlined conclusions and recommendations on TCBMs to ensure strategic stability in outer space. Its recommendations *inter alia* included information sharing on national policies and activities in outer space, notifications of risk reduction efforts, and voluntary visits to launch sites. However, implementation of these recommendations has been minimal, and thus, has had limited impact on norm creation on space security.

Following informal discussions on the practical implementation of these TCBMs in 2017, the [UN Disarmament Commission](#) (UNDC), a part of the UNGA, explored ways in which the recommendations of the 2013 UNGGE report could be implemented. However, the progress in this direction has been negligible as the UNDC couldn't even convene the meetings to carry forward this task.

Another [GGE was convened in 2018](#) and 2019 to identify issues and options to advance a legally binding instrument. Again, due to lack of consensus on [a final report](#) of recommendations, no legally binding instrument emerged out of it. Nevertheless, the work carried out by the Group did highlight points of convergence in several areas, such as the applicability of international law— particularly the applicability of the UN Charter to outer space activities, the freedom of access to outer space without discrimination and on the basis of equality, and the need to avoid hampering the economic or technological development of States.

Concluding Thoughts

As mentioned earlier, the UNGA set up the OWEG primarily on the efforts of the United Kingdom. The UK initiated this latest exercise on law-making for space

security by sponsoring [UNGA Res.75/36](#) on “reducing space threats through norms, rules and principles of responsible behaviours” in 2020. The resolution prudently chose to stay clear of recommending neither a binding treaty nor “soft law” as the product of these deliberations, thereby opening a new pathway for future engagements in this regard. Herein, the focus was on what constitutes threatening and destabilising space behaviour rather than the nature or type of space weapons. This move was followed up by the UK co-sponsored [resolution](#) in 2021 to establish the OWEG, which received wide-ranging support in the UNGA. The OEWG, in its next meeting in September 2022, will focus on current and future threats to space systems.

It appears that international efforts on space demilitarisation have received a new lifeline. The momentum created by the most recent endeavours gives another opportunity for States to reconcile their differences and disagreements on this critical issue. It is hoped that proactive discussions at the OWEG will contribute positively to reducing threats to civilian activities in outer space, making it less congested, contested, and competitive.

Notes & References

* Kiran Mohan Vazhapully is Senior Legal Officer at the Secretariat of Asian-African Legal Consultative Organization (AALCO), an intergovernmental organization based in New Delhi. Views are personal.

OUTER SPACE TREATY AND INDIA'S SPACE POLICY: FORGING A PATH

*Aaditya Vikram Sharma**

Keywords: COPUOS – ISRO – Non-Aligned Movement – Peaceful uses – Space experiments

Introduction:

On 30 June 2022, the Indian Space Research Organisation (ISRO) launched the expendable medium-lift vehicle PSLV-C53 with three satellites. This was the second dedicated commercial mission of the New Space India Limited (NSIL) and the 55th flight of the ISRO workhorse. The mission was commended as another feather in the cap of the highly successful space agency, which has become globally known for its technical expertise and low cost of launches.

However, while the nation has made considerable strides in the space sector, it is legislatively lacking with no coherent domestic law to regulate space activities. This needs to be resolved as the Indian space industry has been witnessing the entry of private actors who have finally been allowed to access it. Pertinently, until a domestic law is laid down, the country will remain liable under international law without any clear responsibility or liability of the private actors.

Though the author in this paper points out that India has not drafted a domestic law till today, the emphasis is not on the lack of legislation but rather on the lack of a drive to make one. To that end, the author highlights India's contributions to the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, 1967 (Outer Space Treaty or OST). Even though India lacked expertise at that time, it could put excellent notions on the table during the drafting of the treaty, especially when the cold war was at its peak. On a tangent, today, when the Indian space programme has achieved so much, it should strike the hammer and finally create an Indian space activities law.

The Indian Space Sector

The Government of India [established](#) ISRO in 1969. It launched its first satellite *Aryabhata* on 19 April 1975. ISRO has made many achievements since— it has [helped detect water](#) on the Moon, launched [an orbiter to Mars](#) and is actively planning a manned [mission to the Moon](#). To date, ISRO has made [84 launches](#) out of which only 9 have failed. The space agency has placed 114 Indian and 342 foreign satellites in space. In June 2020, the Indian government created [IN-SPACe](#) (Indian National Space Promotion and Authorisation Centre) through which private actors have been allowed to enter the Indian space industry. Further, the New Space India Ltd. (NSIL), the commercial wing of ISRO, has already conducted [two](#) missions. However, India lacks domestic space law for the regulation of these actors. Thus, in case of any mishap, [international law will only apply](#).

India and the Outer Space Treaty

When the space race started, there were calls at the UN to regulate this potential arena of warfare. The initiative is usually attributed to the main space powers at the time, which were, the United States and the USSR. Pertinently, contemporary literature ignores the active role played by developing countries such as India in the drafting of the UN conventions covering international space law. In all fairness, the inception of the discussion on peaceful uses of outer space was a [request](#) by the USSR on 15 March 1958 and another by the US on 2 September 1958. Inter alia, both asked the UN to include the agenda of peaceful use of outer space. This led to the creation of an 18-member *Ad Hoc* Committee on the Peaceful Uses of Outer Space on 31 December 1958 through [GA Res. 1348 \(XIII\)](#). This Committee was created as a result of the discussion that had taken place in the thirteenth session of the United Nations General Assembly (UNGA). It should be noted that para 1 of the Resolution states that the General Assembly-

Establishes an *ad hoc* Committee on the Peaceful Uses of Outer Space composed of the representatives of...India...

In other words, India was one of the nations added as a member of the first-ever Committee of the UN dealing with peaceful cooperation in space. But, interestingly, India [abstained](#) when the Resolution establishing the *ad hoc* committee was being passed. Further, India, alongside the United Arab Republic (UAR) decided not to participate in the work of the *Ad Hoc Committee* (the UN Committee on the Peaceful

Uses of Outer Space). The reason was the composition of the Committee as the USSR, Czechoslovakia and Poland decided not to participate. As she would clarify later, India did not believe that any actual progress could be made on the treaty unless both the space-faring nations were on board. Nevertheless, the *Ad Hoc* committee came up with a [report](#) in 1959.

India's tryst with space law started with non-cooperation. The *Ad Hoc* committee met from 6 May 1959 to 25 June 1959 and India did not participate in its work. However, when the Committee gave its report, India joined the nations at the UN in creating a two-part draft resolution. Ambassador C.S. Jha, India's Permanent Representative to the United Nations, [outlined](#) how it was the country's wish to have both the space-faring nations on board any committee (as mentioned above, USSR did not participate in the *Ad Hoc* Committee). He gave a highly constructive suggestion by envisaging that the Antarctic Treaty, 1959 could serve as a model treaty for outer space. This idea is still highlighted in contemporary literature and some believe that it might also [have been accepted at that time](#). Ambassador Jha further said-

Nevertheless, whatever might be the immediate objectives or possibilities of the proposed committee, the ultimate objective of any consideration of the problem must be the prohibition of the use of outer space for any military purposes whatsoever and the conclusion of a convention aiming at the solely peaceful utilisation of outer space for the benefit of man.

These words and the Ambassador's contributions would ring true once the OST was drafted. In any case, in 1959, the draft resolution supported by India was passed with broadly minor changes. This [Resolution](#), that is, UNGA Res. 1472 (XIV) turned the *ad hoc* committee into a permanent one and increased its membership to 24. India [voted in favour of the Resolution](#). This established the [United Nations Committee on the Peaceful Uses of Outer Space](#) (UNCOPUOS).

UNCOPUOS started working immediately and gave reports on the basis of its mandate. Later, on 11 December 1961, India and its partner nations [sponsored](#) a [resolution](#) for the 'International cooperation in the peaceful uses of outer space.' Notably, the [Non-Aligned](#) Movement (NAM) had been established by that time. India was a founding member, and her Prime Minister,

Jawaharlal Nehru, greatly advocated the unity of newly independent countries in a bipolar world. This led to India treading a neutral path in negotiations related to International Space Law without getting swayed by the US or the USSR. In September 1964, the 2nd Summit of Heads of State or Government of non-aligned movement was held in Cairo, Egypt. Among other things, it [reiterated](#) that there is a need of an international treaty prohibiting utilisation of outer space for military purposes. In the same year, India participated in the COPUOS meeting. India's contributions to the UN legal initiatives can be traced to March 1964, when it insisted on absolute liability from damage caused by space objects and asked for a clarification on the application of the draft Convention. The Indian delegation also put forth [the point](#) that outer space should only be used for peaceful purposes and that it was not subject to national appropriation. In May 1964, India chaired the [Consultative Group on Potentially Harmful Effects of Space Experiments](#). The country delegated the task to one of its most prominent scientists, Dr. Vikram Sarabhai. The group focused on the possible undesirable effects of space experiments on scientific activities and observations.

By 1965, India had secured a [funding by the United Nations](#) for the operation of the Thumba international equatorial sounding rocket facility. The mandate for the COPUOS was also expanded. In 1966, India along with the NAM countries, [demanded exclusively](#) the peaceful utilisation of outer space. The UNGA, through a [resolution](#), adopted the report given by the COPUOS and also reiterated the mandate to continue cooperating with the Thumba facility. Especially of note is the fact that the UNGA also acknowledged the Cairo declaration of 1964 of the non-aligned movement. In 1966, as the OST was finalised, the new Indian Ambassador, G. Parthasarathy, [highlighted problems](#) with Article VII of the draft treaty given in the Soviet draft. The Article made States 'internationally' liable for any damage done by their space object(s) to another State. Ambassador Parthasarathy proposed that the term 'internationally' should be replaced with the 'absolutely'. Many delegations supported this view.

Ambassador Parthasarathy also suggested a change to the draft Article IV, that is, the addition of the term "outer space". Though this was not done, the efforts of India were acknowledged by the Soviet Union.

India continued to be an active participant in 1966. She, along with Brazil and the United Arab Republic, insisted on [education and training programmes](#) with a focus on the Peaceful Uses of Outer Space for developing countries. This request was reiterated by specialised agencies of the UN which suggested a pilot programme should be initiated. Ambassador Parthasarathi stated that his delegation wholeheartedly supported any such imitative dealing with education, training, exchange of information and encouragement of international programmes.

Several of Indian initiatives have received due recognition in the Outer Space Treaty, and thus, stand as the evidence of early Indian efforts in the space law-making.

Conclusion

The world is a much different place than it was 60 years ago. The satellite launches of the 1950s are now recurring events which hardly attract any attention. Instead, fascinating new technologies like Internet satellite constellations and potential interstellar launch vehicles have come up. But, international space law is still frozen in time. On the other hand, ISRO has done a commendable job over the years. However, now, as privatisation has started, it has become even more pertinent to draft domestic legislation dealing with space, especially considering the laxity of international space law. As the research above shows, India is quite capable of drafting and envisaging principles in new technologies and the space sector. Even sixty years ago, when its space programme was still in its infancy, the country had the foresight and expertise to participate in the process of the creation of international space treaties. Further, it participated with vigour and the current treaties carry India's mark on them. Therefore, as ISRO embarks on its new space venture, it is recommended that a comprehensive space law should be enacted using the experience gained in drafting the international treaties. The drive to do so can be obtained by looking at the nation's historical achievements.

Notes & References:

* The author is pursuing Ph.D. in Space Law at the West Bengal National University of Juridical Sciences, Kolkata

LIBERALIZATION OF THE INDIAN SPACE SECTOR: PRIVATE PARTICIPATION AND LEGAL CHALLENGES

*Rongeeet Poddar**

Keywords: Authorization – Draft Space Activities Bill, 2017 – IN-SPACe – Outer Space Treaty – Supervision

Introduction

The Indian government is keen to ramp up private sector participation in space activities, following affirmation from the Union Cabinet. The principal science advisor of the Indian government has recently underlined the intention to have greater involvement from private players, acknowledging the Indian Space Research Organization's (ISRO) limited capacity. While ISRO has historically played a pivotal role towards advancing India's space programme, the private sector was restricted to a collaborative role in the manufacturing sphere.

Private players are now expected to actively engage in launching satellites and offering myriad services that would facilitate various domains such as agriculture by enhanced accuracy in climate patterns, increase connectivity capacity and offer an impetus for businesses in the long run. Moreover, the exploration of private avenues is likely to allow the premier government space agency to devote its attention solely to specialized research programmes. The government has also created leeway for a foreign investment stimulus – 100% foreign direct investment has been permitted in the sphere of satellite operation. It is expected that such liberalization would further augment India's burgeoning capacity in the space activities domain.

From a legal standpoint, the challenge before policymakers has been to strike a balance between offering a fillip to privatization in the space sector and also having a concrete regulatory framework in place. Laws must be designed not only to ensure compliance to international treaties but must also mirror global best practices. Since commercial entities will be keen to maximize profits to recoup the substantial investments that space projects demand, it is imperative that compliance costs are minimized. Therefore, the legal architecture regulating space activities is also expected to be amenable to business interests.

Recent privatization trends in the space sector

The [Indian National Space Promotion and Authorization Centre](#) (‘IN-SPACe’) has also been set up to [enable](#) private enterprises to utilize government infrastructure for conducting satellite launches and providing a myriad range of services in the process. As an autonomous institution functioning under the aegis of the Department of Space, the IN-SPACe has also been entrusted with regulating the involvement of private entities. Recently, two Indian enterprises have [received](#) the green signal from IN-SPACe for their respective payload launches.

At the same time, the [Draft Space Activities Bill, 2017](#) (‘Draft Bill’) had been envisaged, owing to the pressing need for having a domestic space law. Despite the advent of IN-SPACe as a regulatory institution, there has not been sufficient progress in the legislative sphere. Interestingly, even as the present dispensation in India appears to be more receptive to the prospect of private sector engagement in outer space activities, the legal regime appears to be at a nascent stage.

As acknowledged in the [‘explanatory note’](#) to the Draft Bill, the government is cognizant of the fact that if space exploration has to be pursued on a commercial scale, a licensing framework has to be established for authorizing private forays into space. In fact, a robust national space law is seen as the ideal precursor to private participation. It can provide investors a sense of certainty as they seek to leverage funding for satellite operations.

While IN-SPACe maybe the genesis of a private space activity ecosystem, it has to be backed by a concrete space law, as is the case in advanced space-faring nations of the West. The overarching tendency towards privatization in the explanatory note has been [flagged](#) since it places commercial use of space at a higher pedestal over India’s treaty commitments; this approach is viewed as a slippery slope. Even though the Draft Bill is regarded as a welcome move, the inadequacies remain far too intractable to overlook.

International commitments

Being a party to all major international treaties governing outer space, barring the Moon Agreement, India is obligated to adhere to treaty obligations. It must be noted that Article VI of the historic [Treaty on Principles Governing the Activities of States](#)

[in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, 1967](#) (“Outer Space Treaty”) puts the onus on state parties to bear responsibility for “national activities in outer space.” A mandate has been imposed on states to create an apparatus for supervision. Secondly, Article VII of the Outer Space Treaty attributes liability to state parties for damage caused by space objects launched from their territory. Thus, the accountability for private space activities has effectively been thrust on state parties.

International efforts, spearheaded by the International Law Association, for pinpointing a set of uniform global regulation standards also culminated in a [model law](#) adopted by the United Nations Committee on Peaceful Uses of Outer Space. Under the model, national legislation proposed, private sector participation in space activities would be subject to a strict standard of scrutiny undertaken by states domestically based on ‘authorization’ and ‘supervision.’ Its regulatory design is backed up by sanctions regime under which authorization suspension is rendered permissible.

Additionally, a provision has been incorporated for environmental impact assessment of private space activities. The model law necessitates the adoption of a debris mitigation framework. There is also an avenue for the government to pursue claims against a private entity in the event where compensation has to be paid by the state to a third party for the damage caused by the private space actor. Even as the Draft Bill in India claims to have utilized the ILA model law as a blueprint, there are several pitfalls in the proposed law which have been highlighted in recent scholarly works.

Scrutinizing the Draft Space Activities Bill, 2017

The applicability of the Draft Bill is restricted to enterprises in the private sector which are registered or incorporated in India. The bill does not provide clarity as to what will happen if foreign firms seek to participate in the Indian space sector in a collaborative capacity with the private sector. Joint ventures undertaken by Indian firms with foreign investors could be operating in a [legal vacuum](#). Moreover, it may be an uphill task to determine a space object of ‘Indian origin’ to which the proposed legislation would be applicable – the Draft Bill [is silent](#) on the critical question.

The definition of ‘space activity’ in the Draft Bill is further shrouded in ambiguity. Its residuary segment potentially brings in research or allied activities within the fold of space activity. The wide ambit of the definition is also likely to cover the manufacturing sector as it is inclusive of space objects ‘procurement’. The expansive nature of the clause appears to transcend the understanding of space activity in the ILA model law which encompasses “other activities essential for the launch, operation, guidance and entry of space objects.”

The power of supervision and regulation have been conferred upon the Central Government. In addition to policy making pertaining to outer space activities, the government can issue licenses for commercial space activity and also monitor compliance with safety standards prescribed. Since the Draft Bill had identified the need for a ‘regulatory mechanism’, it is evident that IN-SPACe is the concerned agency that will play the role of an autonomous agency with regulatory functions.

As outlined in Chapter III of the bill, the license issued by the government is a *sine qua non* for commercial space activity – its object is to ensure compliance to India’s treaty commitments. Interestingly, leeway has been provided for conduct of space activity in the Draft Bill even without authorization as long as it does not contravene India’s international obligations. The Central government has been designated as the sole authority which can provide such an exemption, subject to parliamentary scrutiny. However, this provision may be singled out for criticism as it could be prone to misuse. Since, the Bill is silent about the terms of exemption, it could provide untrammelled impunity to operators of space activity in the private sector. Thus, there is an urgent need to rethink the exemption clause.

While the licensing terms in the Draft Bill have a ubiquitous reference to preventing “adverse damage or pollution to the environment,” it does not insist upon a comprehensive environmental impact assessment for space activities based on precautionary principle. It remains to be seen whether the lacuna in the draft is addressed in the near future. On the other hand, the Central government’s blanket ownership right on “intellectual property right developed, generated or created onboard a space object in outer space” is further likely to hinder private sector engagement. Likewise, the incorporation of an access and benefits sharing clause as a part of the regulatory mechanism is also likely to be a cause for concern. Lastly,

scholars have [highlighted](#) how several aspects of commercial activity in outer space such as resource extraction or tourism have been ignored in the Draft Bill.

Conclusion

Despite its shortcomings, the Draft Space Activities Bill, 2017 was a welcome move. It underscored the government's tacit recognition that the space sector needs regulatory intervention before the private sector transitions to prominent stakeholders from marginal players restricted to manufacturing activities. In its current form, the Draft Bill has several contentious provisions, as identified, and remains a work in progress. There is scope for further engagement with the critical stakeholders for the creases to be ironed out.

With the IN-SPACe already instituted as a facilitator for stimulating private investment and participation in space activities, the government [remains keen](#) for governing non-governmental engagement in the space sector. It must also remain cognizant of fulfilling India's international obligations in this regard. Besides adhering to the mandate of international treaties, the new law has the enviable task of ushering in a regulatory environment that is responsive to the demands of investors who seek to offer a boost to India's space sector. At the same time, environmental concerns and public safety issues cannot be relegated to the margins.

Notes & References:

* LL.M. graduate at WBNUJS with International Law specialisation.

DRONE LAWS IN INDIA: REACHING ITS POTENTIAL OR A LONG WAY TO GO?

*Kanchan Yadav**

Keywords: DGCA – Drone Rules 2021 – Legality of Drones – UAV – UIN

Background

While the widespread usage of drones seems to be a relatively new phenomenon, the technology itself has been in existence for quite a while. Previously, the Unmanned Aerial Vehicles (flying objects that are now broadly classified as drones) used to be almost exclusively used for [military](#) or combat purposes. Unmanned vehicles are very advantageous in the sense that they are able to gather important data, often from beyond the enemy lines, without any harm or casualty to the people. Without there being a human pilot or crew on board, the drones usually use various sensors and detectors to ensure that they can fly unobstructed and can capture the necessary images or footage. However, the operation of the same is usually dependent upon a human operator.

With the advent of the twenty first century and the evolution of drones as a better, efficient, and accessible piece of technology, their user base is no longer limited to the government. Now, private individuals and organizations also use drones for a number of commercial and non-commercial purposes. However, in most nations, including India, the legal regime related to such vehicles is still in its nascent stage. This is an area that requires urgent attention, because in absence of dedicated laws and policies, drones would usually be governed by general aviation law – which are stricter in nature, as those laws were framed keeping in mind large aircrafts. Without a legal regime that neutralizes the elements of misuse from drone usage while ensuring that they can be utilized to their full efficiency, a nation is bound to miss out on the several ground breaking benefits that drone usage offers. The potential areas for drone usage range from delivering help in remote or disaster ridden areas, [helping](#) in agriculture, monitoring and surveillance, art forms such as photography, and many more.

Drones – How Does the Indian Law Define Them?

The first legal framework in India that directly dealt with the UAVs or drones, was the Unmanned Aircraft System Rules of 2021. These rules categorised all kinds of unmanned airborne vehicles into three categories – aeroplane, rotorcraft, and hybrid unmanned aircraft system, with most modern drones falling under the last category. This category has been further sub-divided into [three](#) categories – remotely piloted, model remotely piloted, and autonomous unmanned aircraft systems. Moreover, by weight, these unmanned aircrafts are further divided into [three](#) categories – nano (weight of less than or equal to 250 grams), micro and small (250 grams to 2 kg and 2 kg to 25 kg respectively), and medium and large (25 to 150 kg and more than 150 kg respectively).

The next set of rules on the above-stated issue is the Drone Rules of 2021. Rule 3(i) provides the definition of drone and states that “Drone means an unmanned aircraft system”. Definition of ‘unmanned aircraft system’ has also been provided in the Rules. Rule [3\(zb\)](#) provides that it is “an aircraft that can operate autonomously or can be operated remotely without a pilot on board”. Categorisation similar to that provided in the Unmanned Aircraft Systems Rules is provided in Drone Rules as well, with there being three kinds of aircraft systems, and further categorisation into three categories based on the piloting mechanism of the same. However, Rule 5 of the said Rules provides a much more detailed categorisation of the aircraft systems based on weight, with the five categories being nano, micro, small, medium, and large systems. The weight limits for every category remains the [same](#) as before. In 2022, the Drone (Amendment) Rules came into force, though it makes no change in the definition and description of what kind of vehicles would be [considered](#) as drones.

Other than the aforementioned rules that govern the usage of drones in India, there are several regulations and requirements that operate on the registration, licensing, and operation of drones – particularly by private individuals. In this matter, the primary authority is the Directorate General of Civil Aviation (DGCA), which formulates, revises, and notifies such requirements from time to time.

Regulations on Flight

Once it has been classified as to which flying objects would be considered as drones, the current legal regime then provides a comprehensive guideline on how and under what circumstances they may be flown. To begin with, a type certificate is required to be issued for every UAV or drone. Type certificate may be obtained by utilizing the digital sky platform. Once a proposal has been made under the same, it will be examined by the Quality Council of India, and submitted before the Director General within the time period of sixty days from when the application was made. If satisfied, the Director General may then issue a type certificate for the particular aircraft, which should be done within fifteen days from submission of the report. This type certificate requirement is exempted only for two categories of UAVs – model and nano.

Irrespective of the nature of the aircraft in question, a registration of the Vehicle or drone must be made on the digital sky platform, without which, it cannot be flown legally. The platform will provide each vehicle with a unique identification number. This application would also be made via the digital sky platform, which would ensure verification of details and issuance of Unique Identification Number (UIN) to the ultimate user. This UIN would be connected with the serial number provided by the manufacturer, which would be controlling the flight control module and remote pilot station. This also mandates that the flight control module and remote pilot station cannot be changed without making the necessary changes through the digital sky platform first. Moreover, a person who had an existing unmanned aircraft system during the enactment of these rules, would have till 31st December, 2021, to register their vehicle. Provisions for transferring the ownership and details of a UAV and deregistering a lost or damaged UAV is provided in the Rules as well.

Rule 12 of the Rules also provides that some safety features for the drones may be mandated by the government at any point of time. This would include aspects such as ‘no permission – no take-off’ for the hardware and firmware of the individual. The vehicles may also be equipped with real-time tracking beacons, which would relate its UIN with various aspects such as location, altitude, and space. Another possible safety feature would include the capacity to geo-fence.

While these are the requirements that one must comply with while initially acquiring a drone and making it ready to fly, the operation of drones in itself is highly regulated under the Indian regime. To begin with, it calls for an airspace map, which would

divide the country into red, yellow, and green zones. In the red and yellow zones, a drone may be operated only with prior permission. However, the green zones are exempted from such requirements. The zoning mechanism is dynamic and the status of a zone may be changed as per requirement, therefore, ensuring that a one-size-fits-all approach is not adopted for earmarking the zones. While operating such vehicles, the Rules also mandate that products such as arms, ammunitions, explosives, dangerous goods, etc., cannot be carried or sent via a drone, to ensure safety and security for all the people.

To fly a drone itself, a user would need to acquire a valid remote pilot license, obtained from the digital sky platform, without which it would be illegal to operate a drone – even for a very short duration. Any person who is between the ages of eighteen to sixty-five and is educated at least till class X, would be eligible to apply for the remote pilot license. The license is valid for a ten-year period, after which it must be renewed. However, the users who are operating a nano UAV or a micro-UAV for non-commercial purposes, would not be required to obtain the license.

Room for Improvement

In view of the foregoing discussion, it may be said that while India's legal regime related to drone usage is still evolving, it has got a good start. While a number of licenses and permits are required to own, fly, and use a drone, the process is highly streamlined, with the digital sky [platform](#) being utilized for everything. However, the primary gap area, which has the potential to cause serious security threats in the future as well, is the exemption that is being provided to the nano, and to some extent, micro aircrafts.

The general idea behind exempting them from registration and remote pilot licensing is that these would ordinarily be recreational vehicles, and mandating a strict licensing procedure on them would significantly hamper trade and usage of such devices. However, the problem lies in the fact that the categorization is done based solely on weight, and other technological factors are not taken into account. With the advent of artificial intelligence and other emerging technologies, it would not be a strenuous task to equip a nano or micro drone with the equipment to cause serious threat to the safety, security, and privacy of the people of India. Thus, the categorization system which forms the basis of the licensing procedure of drones

and exemption from the same, requires a serious overhaul to mitigate these potential concerns in an urgent manner.

Notes & References:

* Junior Research Fellow, The WB National University of Juridical Sciences, Kolkata.

IS THE OUTER SPACE AN OUTLET FOR TAX EVASION?

*Twesha Karnani**

Keywords: National Appropriation – Outer Space Treaty – Residential Status – Sovereignty

Introduction

Private space exploration is becoming common, and opportunities for extraterrestrial operations have grown considerably. A glimpse of the issues arising from taxing outer space activities is seen in taxing the activities conducted in digital space. The space sector generates an income of \$350 billion and it is expected to jump to \$1 trillion by [2040](#). It is important to tax those involved in this sector especially if such activities are for personal benefit and not for the advancement of mankind and science. On this issue, US Congressman [Earl Blumenauer](#) had planned to introduce the [Securing Protections Against Carbon Emissions \(SPACE\) Tax Act](#). He believes that “space exploration isn’t a [tax-free holiday](#) for the wealthy. Just as normal Americans pay taxes when they buy airline tickets, billionaires who fly into space to produce nothing of scientific value should do the same, and then some”.

Typically, the [levy of tax](#) has been based on the place of residence of the individual, a company’s place of operation or where a property is situated. However, when it is difficult to prove an individual’s or entity’s existence physically, assessing taxes becomes challenging. Even though, while assessing taxes in such scenarios, the basic principles of taxation law must be kept in mind, the present regime might be insufficient to provide for the rapid growth that is taking place in this sector.

The levy of tax in the space sector can be on a variety of operations such as services of satellites, astronauts staying aboard the International Space Station (ISS) and space tourism. It has been opined that future legislation in this area must be based on the laws that govern the [high seas](#).

This write-up discusses how the levy of taxes on the services provided by satellites, the income of astronauts or other outer space activities pose to be an issue. Furthermore, a prospective suitable tax regime is also briefly discussed.

The issue with levying tax on satellite services

The most notable instance of space technology that causes problems for tax officials is the usage of satellites. It is challenging to establish a proper way of taxing because of the ambiguous character of such services. The primary issue with satellites is that since they orbit the Earth, they will be over more than one country while providing their services to a third country. The “footprint” of the satellite cannot be considered the place of business of the satellite operator. From the point of view of direct tax, the residential status of the satellite operator is a critical component and not the satellite’s actual [location](#).

[Article II](#) of the Outer Space Treaty states that outer space “is not subject to national appropriation by claim of sovereignty”. This doctrine of non-appropriation places restrictions on those who want to profit from space activities. Since States cannot claim sovereignty over outer space, the question which arises is whether imposing and collecting taxes could possibly violate the non-appropriation doctrine as taxes are based on the sovereign territorial rights of the States. This is something which needs to be determined in order to decide whether outer space activities could be taxed.

In *Communications Satellite Corporation v. Franchise Tax Board*, satellites were operating in the geostationary orbit. The owners of the satellites, who were located outside of California, established an earth base that gathered signals for transmission to other carriers. Claiming the satellite was utilised within the state, the California Court of Appeal supported the incorporation of the satellite’s worth in the property for allocating California income tax. Nevertheless, this was reliant on the earth station’s presence because, without it, California wouldn’t be connected to the satellites’ functions in space.

In *Asia Satellite Communications Co. Ltd. v. DIT*, the Court held that an important component in determining how to tax such situations is through thoroughly analysing the technical operations of the satellites.

Where do Astronauts pay taxes?

Scott Kelly, the astronaut, lived in space for almost a year. Does this mean he didn’t have to pay taxes since he was not a resident of the United States or for that matter

even the Earth? Even though he orbited the Earth every 90 minutes, he didn't visit any country since the sovereign airspace does not stretch out to outer space. In such scenarios too, due to the lack of laws, the traditional principles of taxation need to be adhered to. This situation is identical to seafarers rendering their services on a ship. However, one must establish the nature of employment abroad, whether the International Space Station falls under the ambit of a "ship" or a "vessel". In the Indian scenario, hypothetically, the residential status of the astronaut will be considered based on the number of days they stay aboard the ISS and physically outside the boundaries of India.

How should outer space activities be taxed?

The method of taxing outer space activities can be like taxing activities in digital space. It's possible to argue that the inadequacies of tax regimes based on residential status have been made apparent by cross-border online services. To combat this, the Organisation for Economic Co-operation and Development (OECD) is spearheading initiatives to fundamentally redefine the global tax regime. Space taxes may eventually follow an identical course. However, this does entail a risk since individual nations would implement unilateral measures, creating an unstable and challenging tax environment for the space industry. Using residential status for calculating the amount of tax to be levied is not the right step in the case of space activities even though it is considered to be of central importance to this sector. This is due to the fact that firstly, space does not have boundaries and the Outer Space Treaty prohibits states from claiming sovereign power in outer space. Secondly, there are many ambiguities when it comes to applying the same residence-based tax system in this scenario which will lead to more problems.

An alternative model for taxing outer space activities would be through the existence of a voluntary tax system between participating nations. These nations can choose to invest in the advancements of space technology in order to be able to reap the benefits that arise out of it. This could make it possible for new countries to engage and profit from space activities while also taking into account the legitimate interests of those countries and commercial players who currently fund these activities solely. Nevertheless, it is crucial to note that a voluntary tax system for space activities could generate issues of equity, as certain nations will gain from such activities even if the investment made by it is low in comparison with others. For such a framework to

prosper, there must be the existence of a universal organisation administering space tax. This function can also fall under the functions of the World Bank.

Conclusion

Through this write-up, it can be understood that outer space is not an outlet for tax evasion. The lack of a proper tax regime does not imply that taxes need not be paid appropriately. Although governments and organisations, both domestic and global, continue to commit a significant amount of money and time to the expanding space sector, there has been less focus on making sure that tax regimes keep up with it. In complex situations such as these, the basic principles of taxation law must be kept in mind. However, it is challenging to do so since space does not have any boundaries and nations are prohibited to establish sovereignty in outer space. Even though outer space lies outside the boundaries of any country, individuals are liable to pay taxes for the income earned in space. It can be concluded that there are many gaps and a lack of a proper tax system when it comes to outer space activities. Therefore, a multilateral approach must be adopted to tackle this issue. There shouldn't be a zero-tax system being followed in zero gravity. The lack of adequate laws can allow people to find loopholes to reduce their tax liabilities. However, the space sector is in no way a sector that is a channel for tax evasion.

Notes & References:

* Student at Symbiosis Law School, Hyderabad.

PRIVATE SPACE COMPANIES AND INSOLVENCY: UNRAVELLING THE LEGAL QUAGMIRE

*Ishita Das**

Keywords: Bankruptcy Code – Outer Space Treaty – Protocol for Space Assets – Resources – UNCITRAL Model Law

Introduction

The rapid proliferation of private space companies presents unique challenges as regards insolvency and bankruptcy. The terms ‘insolvency’ and ‘bankruptcy’ have different meanings, wherein the former refers to a financial concept while the latter refers to a legal process. However, the author uses these two terms interchangeably in this piece. The nature of activities undertaken by commercial entities is becoming multi-faceted. With technological developments, the number of such players would only compound, thereby increasing the risk appetite, and in turn, propagating multiple insolvency scenarios wherein a clear regulatory framework would be critical. Many regard outer space as the domain owned by the big space-faring nations and billionaires. The high entry costs prohibit the other smaller players from having a piece of the outer space pie.

However, rather surprisingly large number of commercial entities could either be a boon or a bane. If these entities manage to keep their financials in place, they could contribute immensely to the growth of the outer space sector. However, if their financial outlook is bleak, it could prevent other smaller players from entering the space market. Two recent cases involving Masten Space Systems and OneWeb, demonstrate the challenges faced by commercial entities vis-à-vis this sector. Both companies had filed for bankruptcy under [Chapter 11](#) of the United States [“U.S.”] Bankruptcy Code. This piece intends to provide a brief insight into the interface between the outer space sector and the bankruptcy framework at the international level.

The Commercialisation of Outer Space and Insolvency

One of the five commercial entities, Masten Space Systems, that was awarded the contract by the National Aeronautics and Space Administration [“NASA”] under

the Commercial Lunar Payload Services Program [“CLPS”] has recently [filed for bankruptcy](#). The company’s staff strength was cut short, and several employees working on the XL-1 project were laid off. However, the financial position did not improve despite such financial arrangements, finally [leading the company to declare bankruptcy](#). According to the company, the [assets of the company](#) were to the tune of USD 10 to 50 million and were roughly matched by the liabilities. The filing was before the U.S. Bankruptcy Court for the District of Delaware. Some of its [major creditors](#) include SpaceX: the largest creditor, Psionic, Astrobiotic, NuSpace, and Frontier Aerospace.

The federal bankruptcy court in Delaware approved the sale of the company’s assets to Astrobiotic in an auction wherein the bidder offered a price of USD 4.5 million for [‘substantially all’](#) of Masten’s assets. After the Chapter 11 reorganisation concludes, NASA would be in a position to determine whether the company would be able to discharge the terms of the CLPS contract. The second case concerning OneWeb, a big broadband satellite constellation company that recently underwent a restructuring process, is a perfect example of successful restructuring as regards commercial entities in this sector. The restructuring process vested a 42.2 percent stake in the company’s assets with Bharti Global and the UK Government each. The UK Government [underscored its ambition](#) to put the country on the global map as regards space technologies after this restructuring.

It is important to note that companies such as Masten rose from the bottom and [achieved extraordinary feats](#) as a start-up, with only a handful of individuals leading a small team of talented and hardworking aerospace engineers. Therefore, when external circumstances such as the [Covid-19 pandemic forced Masten to file for bankruptcy](#), it was a sad day for dreamers of private space ventures. These cases exhibit the inherent financial risks associated with start-ups in the outer space sector. Therefore, a proper financial cushion to mitigate the risks could be key to dealing with such challenging situations in the future. For instance, if the start-ups are adequately backed by the governmental agencies and the public-private partnership [“PPP”] model is adopted, the government and the company could benefit from such an arrangement.

The government can potentially gain from the expertise and agility of the company, while the commercial entity can rely upon the government’s support during financial

distress. The allocation of risk between the public and the private entity is well-defined as regards the PPP model, and the latter is subject to strict financial reporting standards that would inevitably create a more financially-sound ecosystem for such ventures.

The Relevant International Legal Instruments

The Outer Space Treaty lays down general principles regarding the concept of ownership wherein the launching state, or the private entities associated with the state, are vested with the ownership of the space assets. Article VI makes it amply clear that the launching state would be responsible for the activities of both governmental and non-governmental entities in outer space. Article II specifies that outer space, including the Moon and other celestial bodies, is not subject to ‘national appropriation’ by any state. Therefore, while the ownership rights vis-à-vis the states are quite clear, the same cannot be inferred regarding private companies. As more companies penetrate the outer space sector, the chances of space mining increase manifold, leading to possible tense situations in relation to insolvency proceedings.

The lack of a clear insolvency framework concerning the outer space sector could be deeply problematic as the insolvency practitioners would not be adequately equipped to distribute the mined assets of the insolvent company among the group of creditors. This situation could get more complex if multiple countries seek to lay claim to the assets of the company. In this context, the UNCITRAL Model Law on Cross-border Insolvency provides procedural certainty and a multi-state cooperation mechanism as regards cross-border insolvency proceedings. The provisions of the Model Law are wide enough to be construed in light of the novel developments taking place in the outer space sector. However, given that with the passage of time more space-faring nations would enact domestic laws concerning commercial activities in outer space, including the Moon and other celestial bodies, akin to the U.S. and Luxembourg, the cross-border regime envisaged under the Model Law has to be visualised within the domestic instruments.

Article 25 of the UNCITRAL Model Law stipulates that the court of the host state and the foreign courts or representatives shall cooperate either directly or through an officially appointed liquidator or an administrator. The host court can communicate directly and request information or assistance from the concerned

foreign courts or representatives. [Article 26](#) of the Model Law provides that the officially appointed liquidator or administrator shall ‘cooperate to the maximum extent possible with the foreign courts or representatives. Such a person or entity shall operate under the guidance and supervision of the court while discharging the functions under the law. The [forms of cooperation](#) have been identified under Article 27 of the Model Law, wherein the role of the arbitrator or mediator could be instrumental in resolving any dispute regarding insolvency proceedings in the outer space sector.

Another international instrument that could be extremely useful is the Cape Town Convention’s Protocol for Space Assets, 2012, which lays down a [specialised procedure](#) for dealing with insolvencies concerning space assets. Article XXI of the Protocol provides for the remedies for insolvency wherein, as per Alternative A, the creditors may seek repossession or control over the spacecraft upon the end of the waiting period. This provision, coupled with an enhanced understanding of the distribution of mined assets, could pave the path for the insolvency-related troubles of companies in the outer space sector.

Conclusion

It is worth noting that the financial challenges associated with start-ups in the outer space sector could be steep. However, there are strategies through which they could be addressed effectively, especially through restructuring wherein the acquiring company values the vision and goals of the company acquired. The future of the sector could rest upon how public-private partnerships across multiple jurisdictions can support commercial ventures that may face stormy waters. Even though the damaged ship, akin to the [ship of Theseus](#), might be torn into pieces and distributed among different takers, the spirit of the ship or its legacy could be continued by the new stakeholders.

The future of the outer space sector and the participation of private entities would rely upon how well the financial risks are mitigated, and existential challenges are surmounted. The current international instruments, such as the UNCITRAL Model Law and the Cape Town Convention’s Space Assets Protocol, if incorporated effectively within the domestic laws, could create a stable regulatory system for the outer space participants. While there is much to learn from a study of the OneWeb

and Masten insolvencies, the sector needs to be more prepared to deal with future bankruptcies so that the new challenges that may arise, for instance, the distribution of mined resources among the creditors situated in multiple jurisdictions, are addressed in tandem with the core goals of the Outer Space Treaty.

Notes & References:

*The author is an Assistant Professor (Law) at NALSAR University of Law, Hyderabad. She can be contacted at ishita.das@nalsar.ac.in.